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EXAMINER	
EDMONDSON, LYNNE RENEE	
ART UNIT	**PAPER NUMBER**
1725	

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/090,083	FARASSAT, FARHAD	
	Examiner	Art Unit	
	Lynne Edmondson	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-4,6-16,18-21,23 and 27-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-4,6-16,18-21,23 and 27-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 March 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 12-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kelly (USPN 5894981).

Kelly teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device (col 1 lines 5-12) formed in the conventional manner of heat or ultrasound (col 3 lines 16-26). Wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp (24) and raising the wire through a second distance (col 4 lines 46-59, col 6 lines 16-22 and col 8 lines 1-42). A computer program is employed (col 6 lines 22-46). The testing arrangement is integrated into the bonding head (figure 3 and col 4 lines 21-28). The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder (col 4 lines 40-59) and a program control system for controlling movement and taking measurements (col 6 lines 22-46 and col 9 lines 47-64). The wire clamp holder is mounted to the bonding head

such that is can be easily deflected agàinst a pre-tensioning element (flexible cantilever or spring) (col 1 lines 22-30 and col 7 lines 18-33). The bond head can be linearly displaced (col 4 lines 29-45). An intact state is detected during the process (col 8 lines 55-65). See also Kelly claims 1-5, 7-10 and 14-23.

3. Claims 1-5, 8-10, 12-26, 29 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Price et al. (USPN 5591920).

Price teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device (col 1 lines 36-40) formed in the conventional manner of heat or ultrasound wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp (19) and raising the wire through a second distance during which process the force on the wire is detected (col 2 lines 25-40, col 3 lines 15-45 and col 4 lines 37-63). Distances and forces are calculated over time by a computer program (col 2 lines 33-40 and col 4 lines 1-36). The testing arrangement is integrated into the bonding head (figure 1). The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder (col 3 lines 15-22) and a program control system for controlling movement and taking measurements (col 1 line 60 – col 2 line 3, col 5 lines 14-67 and col 8 lines 38-42). An intact state is detected during the process (col 4 lines 64-67). See also Price claims 1-17.

4. Claims 1-4, 6-10, 12-26, 18-23, 27, 28 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Kurtz et al. (USPN 4597519).

Kurtz teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device formed in the conventional manner of heat or ultrasound wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp and raising the wire through a second distance during which process the force on the wire is detected (col 1 lines 19-30). Distances and forces are calculated over time by a computer program (col 4 line 65 – col 5 line 18, col 9 lines 40-68 and col 10 line 45 – col 11 line 51). The testing arrangement is integrated into the bonding head. The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder and a program control system for controlling movement and taking measurements (col 9 lines 40-68 and col 10 line 45 – col 11 line 51). The wire clamp holder is mounted to the bonding head such that is can be easily deflected against a pre-tensioning element. A spring is employed (col 3 lines 1-29 and col 10 lines 30-44).

5. Claims 1, 4, 6-10, 12-16, 21, 23, 27 and 28are rejected under 35 U.S.C. 102(b) as being anticipated by Zimmerman (USPN 4786860).

Zimmerman teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device formed in the conventional manner

of heat or ultrasound wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp and raising the wire through a second distance during which process the force on the wire is detected (col 3 lines 1-46). The testing arrangement is integrated into the bonding head. The wire clamp holder is mounted to the bonding head such that is can be easily deflected against a pre-tensioning element .The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder and a program control system for controlling movement and taking measurements (col 1 lines 24-34 and col 2 line 9 – col 3 line 46).

6. Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikoma et al. (USPN 6435399 B2).

Ikoma teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device formed in the conventional manner of heat or ultrasound wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp and raising the wire through a second distance during which process the force on the wire is detected. Distances and forces are calculated over time by a computer program (figures 1-3, col 1 lines 24-36 and col 2 line 60 – col 2 line 15)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 6, 7, 11, 27, 28 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Price et al. (USPN 5591920) in view of Ringler et al. (USPN 6439448 B1) and Mayer (USPN 4895028).

Price teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device (col 1 lines 36-40) formed in the conventional manner of heat or ultrasound. Wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp (19) and raising the wire through a second distance during which process the force on the wire is detected (col 2 lines 25-40, col 3 lines 15-45 and col 4 lines 37-63). Distances and forces are calculated over time by a computer program (col 2 lines 33-40 and col 4 lines 1-36). The testing arrangement is integrated into the bonding head (figure 1). The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder (col 3 lines 15-22) and a program control system for controlling movement and taking measurements (col 1 line 60 – col 2 line 3, col 5 lines 14-67 and col 8 lines 38-42). An intact state is detected during the process (col 4 lines 64-67). However there is no disclosure of an elastically deflected clamp holder or of a strain gage or leaf spring.

Ringler teaches a method of testing wire bond connections between a bonded wire and a surface on an electronic device formed in the conventional manner of heat or ultrasound (col 1 lines 10-15). Wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp (60) and raising the wire through a second distance during which process the force on the wire is detected (col 4 lines 44-59 and col 8 lines 3-32). The testing arrangement is integrated into the bonding head (figure 2). The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder (figure 2 and col 4 lines 1-18) and a program control system for controlling movement. (col 2 lines 19-33 and col 3 lines 5-10). The wire clamp holder is mounted to the bonding head such that is can be easily deflected against a pre-tensioning element (flexure, 50, 250) with a piezoelectric stack for force measurement (col 4 lines 44-53) and a leaf spring (col 8 lines 33-37).

Mayer teaches a strain gage for detecting force applied to a flexible element (col 2 lines 14-45 and col 2 line 60 – col 3 line 27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ an elastically deflected holder to prevent damage to the tool and substrate and to employ a strain gage and a leaf spring to measure and control force in a simple and cost-effective manner (Vanderclip, col 2 lines 1-7).

9. Claims 11 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (USPN 4597519) in view of Ringler et al. (USPN 6439448 B1) and Mayer (USPN 4895028).

Kurtz teaches a method of testing wire bond connections between a bonded wire and a pad on an electronic device formed in the conventional manner of heat or ultrasound wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp and raising the wire through a second distance during which process the force on the wire is detected (col 1 lines 19-30). Distances and forces are calculated over time by a computer program (col 4 line 65 – col 5 line 18, col 9 lines 40-68 and col 10 line 45 – col 11 line 51). The testing arrangement is integrated into the bonding head. The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder and a program control system for controlling movement and taking measurements (col 9 lines 40-68 and col 10 line 45 – col 11 line 51). The wire clamp holder is mounted to the bonding head such that is can be easily deflected against a pre-tensioning element. A spring is employed (col 3 lines 1-29 and col 10 lines 30-44). However there is no disclosure of a strain gage or leaf spring.

Ringler teaches a method of testing wire bond connections between a bonded wire and a surface on an electronic device formed in the conventional manner of heat or ultrasound (col 1 lines 10-15). Wherein the method comprises lifting the bonding head after bond formation, gripping the wire with a clamp (60) and raising the wire through a second distance during which process the force on the wire is detected (col 4 lines 44-

59 and col 8 lines 3-32). The testing arrangement is integrated into the bonding head (figure 2). The bonding head comprises a tool holder, transducer holder, wire clamp holder, drive mechanism for vertical displacement of the bonding head and tool holder (figure 2 and col 4 lines 1-18) and a program control system for controlling movement (col 2 lines 19-33 and col 3 lines 5-10). The wire clamp holder is mounted to the bonding head such that is can be easily deflected against a pre-tensioning element (flexure, 50, 250) with a piezoelectric stack for force measurement (col 4 lines 44-53) and a leaf spring (col 8 lines 33-37).

Mayer teaches a strain gage for detecting force applied to a flexible element (col 2 lines 14-45 and col 2 line 60 – col 3 line 27).

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ an elastically deflected holder to prevent damage to the tool and substrate and to employ a strain gage and a leaf spring to measure and control force in a simple and cost-effective manner (Vanderclip, col 2 lines 1-7).

Response to Arguments

10. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a force measurement device) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are

not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Therefore the 102 rejection of claims 1 and 12-16 as anticipated by Kelly is restated.

11. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a direct force measurement device) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

12. It is noted that claim 2 of Price teaches a force detecting means. Although there is no disclosure of the stress/strain diagram of figure 4 as from the Price device, it is presumed that the inventors included data from their own device, which performs the same process in the same manner.

Therefore the 102 rejection of claims 1-4, 8-10, 12-16, 18-21, 23, 29 and 30 as anticipated by Price is restated.

13. Applicant's arguments with respect to claims 6, 7, 11, 27 and 28have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Farassat (USPN 6758385 B2).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (571) 272-1172. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lynne Edmondson
Primary Examiner
Art Unit 1725

LRE

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3/12/06